

C-6.6 Distinguish between strong and weak common acids and bases.

Revised Taxonomy Level 4.1B Distinguish conceptual knowledge

Students did not study this concept in physical science

It is essential for students to

- ❖ Understand the difference in the terms strong and concentrated and the difference in the terms weak and dilute
- ❖ Recognize and write ionization equations for the following five strong acids
 - HI
 - HBr
 - HCl
 - HNO_3
 - H_2SO_4
- ❖ Recognize and write ionization equations for the following four strong bases
 - $\text{Ca}(\text{OH})_2$
 - $\text{Ba}(\text{OH})_2$
 - KOH
 - NaOH
- ❖ Differentiate between Arrhenius, Brønsted-Lowry, and Lewis definitions of acids and bases
- ❖ Identify conjugate acid/base pairs in ionization reactions and relate the strength of acids and bases to relationship between conjugate acid/base pairs
 - Strong acids produce weak conjugate bases
 - Strong bases produce weak conjugate acids

Assessment

As the verb for this indicator is differentiate (distinguish), the major focus of assessment should be for students to distinguish between the relevant and irrelevant parts of presented materials. Because the verb is differentiate rather than compare, students should be able to not only identify strong and weak acids from a list but also compare the strength of acid/base pairs in ionization reactions.. Because the indicator is written as conceptual knowledge, assessments should require that students understand the “interrelationships among the basic elements within a larger structure that enable them to function together.”